REMARKS/ARGUMENTS

In the Office action, independent claims 1 and 11 are rejected under 35 U.S.C. § 102(e) as being anticipated by Tu (U.S. Patent No. 6,602,427). It is the examiner's position that Tu discloses "performing certain process steps from the top side of a substrate carrying a plurality of devices, at least certain of the devices having a micro-machined mesh (figs. 4-10)." Further, the examiner states:

> Tu (figs. 4 – 13) teaches a suspended micromachined membrane with four openings (414). These openings are further filled with porous material, thereby forming a net/network, which is a classical definition of a mesh.

The examiner cites no support for the statement that the four openings (414) are filled with a porous material, because the openings (414) are not filled. The examiner's understanding of Tu is flawed as discussed below.

Figure 7 of Tu discusses the openings (414) in column 6, lines 56 – 59, as follows:

> A 20 x 20 μm anti-reflection coating pad 412 is a portion of LTO layer 411 at the central area of the window 414 that is not removed when layer 411 is patterned by photolithography and selectively etched.

The openings are also discussed in conjunction with figure 8 in column 7, lines 2 – 6, as follows:

> The nitride pattern 416 includes a 20 x 20 μm square area at the center that covers the underlying anti-reflection coating pad 412 and four 30 x 10 μm Z-shaped legs extending outward from the central square area and defining four openings 414 between them.

Next, the openings are discussed in conjunction with figure 9 in column 7, lines 27 – 31, as follows:

> Next, the polysilicon disposed within the four openings 414 are removed by photolithography and RIE to reveal the underlying heavily doped region 423 of the middle polysilicon layer 406.

Note that in figure 9, the material exposed within the openings (414) is a heavily doped region identified by reference number (423). The heavily doped region (423) is converted into polysilicon identified by reference number (424) in figure 10. See also column 8, lines 12 – 15, which provide:

> The anodization is first to convert the heavily doped polysilicon disposed in the central region 407 of the middle polysilicon layer 406 and in the four small regions 405 of the bottom polysilicon layer 404 into porous polysilicon 424.

Thereafter, in conjunction with figure 12, Tu discloses in column 8, lines 42 – 57:

> The porous polysilicon 424 and porous single crystalline silicon 425 are removed by etching in a diluted KOH solution, resulting in a top polysilicon membrane 430 and its four supporting polysilicon beams 431, a bottom polysilicon membrane 433, and an air gap 432. It is noted that the top polysilicon membrane 430 is still supported by the four un-doped polysilicon poles 434 that stand on the surface of the underlying un-doped regions of the bottom polysilicon layer 404 and its four supporting polysilicon beams 430 are still supported by the un-doped polysilicon poles 435 that stand on the surface of the underlying un-doped polysilicon regions of the bottom polysilicon layer 404. Then an anti-reflection coating 429 is formed on the back surface of the bottom polysilicon membrane 433 by electron beam evaporation. After these processing steps, the single crystalline silicon substrate 401 appears as shown in FIG. 12.

The component referred to in TU as the membrane 430 is finally released as discussed in column 8, line 58, through column 9, line 11, as follows:

> Another RIE process is performed to remove the un-doped polysilicon poles 434 and 435. . . . To etch the un-doped polysilicon poles 434 and 435, the RIE etching is carried out to remove the top silicon nitride layer 415, then the top polysilicon layer 410, then the middle polysilicon layer 406, and finally stopped at the bottom polysilicon layer 404. For revealing the anti-reflection coating pad 412, the RIE etching is carried out to remove the top silicon nitride layer 415, then stopped at the LTO layer 412. After the RIE etching the top polysilicon membrane 430 and its supporting polysilicon beams 431, as shown in FIG. 13, are completely released from the bottom polysilicon layer 404. Since the final release of the top polysilicon membrane 430 and its supporting polysilicon beams 431 is done by dry etching, no stiction of the top polysilicon membrane 430 and its supporting polysilicon beams 431 takes place.

It is seen from these sections of Tu, that the windows (414) are openings. They are not filled with metal, or any other material. Thus, the examiner's understanding of Tu is fatally flawed.

Once Tu is considered for what it actually discloses, i.e., a membrane suspended above the substrate by four Z-shaped legs extending outwardly from the central square area and defining the four openings (414) between the legs (Tu, Column 9, lines 4 – 7), then the relevance of the Gabriel declaration becomes clear. As set forth in paragraph 15 of the declaration, there is

nothing in Figs. 4 – 10 of Tu that teaches the fabrication of a mesh. As stated in paragraph 16 of the declaration, a person of ordinary skill in the art, upon examining Figs. 4 - 10 of Tu, would not conclude that the openings (414) between supporting Z-shaped legs turn the membrane into a mesh. Because virtually every MEMS device is suspended above the substrate by one or more arms, legs, or beams, if the examiner's position was correct, then virtually every MEMS device would be a mesh. That is obviously not the case.

The examiner has apparently not given the Gabriel declaration any weight because "the threshold is one of ordinary skill in the art. Dr. Gabriel is one with specialized skill in the art, and further more [sic] a real party of [sic] interest with Akustica, Inc." The examiner's position is incorrect for several reasons:

1. Dr. Gabriel, a person of specialized skill in the art, is certainly qualified to provide an opinion that a hypothetical person of ordinary skill in the art would not understand Tu to disclose a mesh. (See paragraph 13 the Gabriel declaration.)

2. If Dr. Gabriel, a person of specialized skill in the art, is unable to find within Tu a teaching of a mesh (see paragraph 15 of the Gabriel declaration), then it is not possible for a person of simply ordinary skill to find such a teaching.

3. Dr. Gabriel's relationship with the assignee of the present application merely goes to the weight to be given to the declaration; the relationship does not render the declaration of no value.

It is respectfully submitted that when Tu is carefully reviewed for what it actually teaches, and when the Gabriel declaration is given the weight it deserves, and when it is noted that the examiner has provided no specific citations to support his position, that the only evidence of record supports the position that Tu does not disclose a mesh. The rejection of claims 1 – 12 under 35 U.S.C. § 102(e) as being anticipated by Tu must be reversed. If the examiner remains of the opinion that Tu teaches a mesh, the examiner is respectfully requested to provide column and line numbers to support his position.

In the previous Office action, a double patenting rejection was made. The double patenting rejection was not repeated in the latest Office action, which normally indicates that the rejection has been withdrawn. In the next communication, it is respectfully requested that the examiner make clear his position with respect to the double patenting rejection.

The undersigned attorney regrets that the examiner was unable to conduct the telephonic interview which was to occur at 2 p.m. (EDT) on 22 September 2006. However, in view of the detail with which applicants have laid out their position, it is clear that the applicants have made a diligent effort to place the instant application in condition for allowance. If the examiner is of the opinion that the instant application is in condition for disposition other than through allowance, the examiner is requested to contact applicants' attorney at the telephone number below.

Respectfully submitted,

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